CREATING CURIOUSITY

FOR PRESCHOOL KIDS

THE PERFECT MIX FOR SCIENCE

LYN WRIGHT

Magic Copper Cleaner

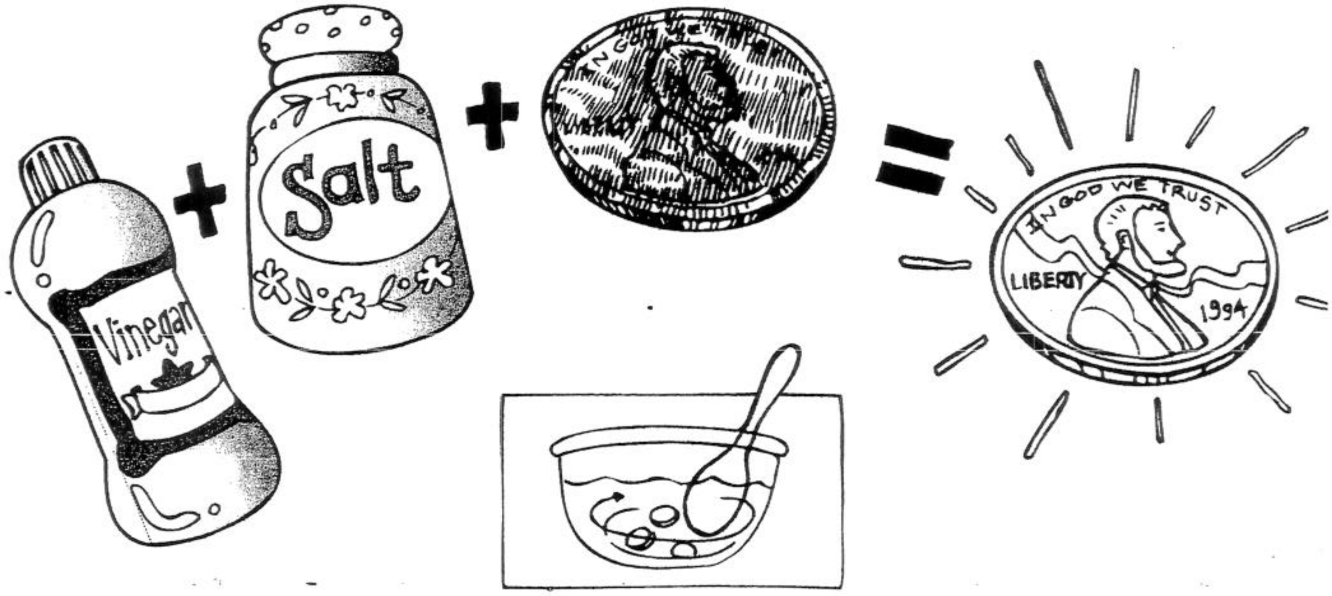
K-3

Materials:

1 cup (250 ml) white vinegar
1/4 cup (60 ml) table salt
bowl
spoon
copper pennies, buttons, cups, jewelry or other items

Process:

1. Pour vinegar into the bowl.
2. Add salt and stir until the solution is clear.
3. Add tarnished items to the bowl and stir gently. The copper pieces will change before your eyes!



Try This:

- Throw hundreds of pennies into the school yard and have children go on a treasure hunt. Stir the pennies into the magic solution and watch in awe. Follow up with math activities using the bright, shiny coppers.

Bubble Up

K-3

Materials:

glass
2 ounces (59.14 ml) white vinegar
3 seashells

Process:

1. Pour vinegar into a glass.
2. Add the seashells.
3. If there is limestone in the shells, you'll have your very own bubble factory!

Try This:

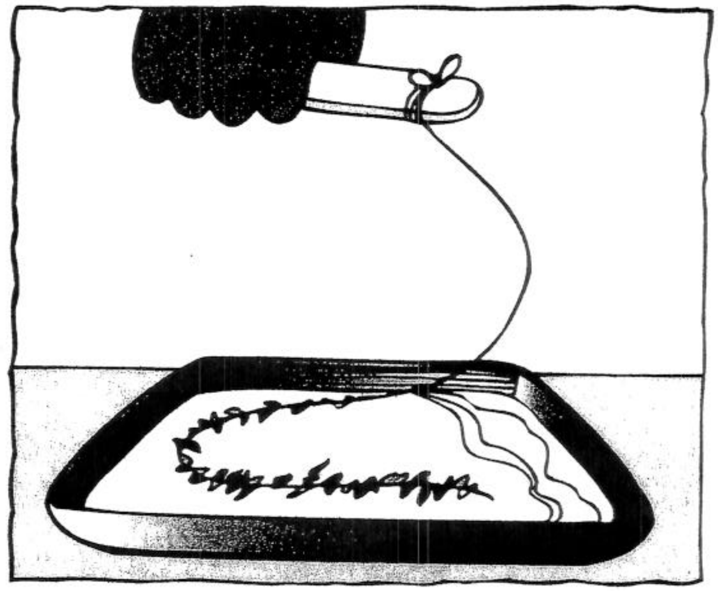
- Bubble Center: Provide students with a vinegar bath and an assortment of items. Have students predict which ones will produce bubbles when set in the bath. Can students explain why some do and some don't?

Candy on a String

K-3

Recovering solute crystals–an experiment you can eat.

Materials:



- 1/2 cup (125 ml) water
- 1 cup (250 ml) granulated sugar
- wooden spoon
- measuring cup
- small saucepan
- small shallow dishes
- stove
- string
- craft stick

Process:

1. Stir water and a spoonful of sugar in the pan over low heat.
2. Add spoonfuls of sugar, one at a time, stirring each addition until it dissolves.
3. Continue heating gently until all sugar is dissolved.
4. Boil for 1 minute until the solution is thick and clear with no crystals.
5. Pour hot solution into dishes.
6. Let stand.
7. Tie one end of the string to a craft stick.
8. Lay a string in the center of the dish. The sugar crystals will form on it.

Try This:

- Observe the crystalization process with a magnifying glass.
- Look at sugar with a magnifying glass and then with a microscope.
- Encourage students to observe and discuss what they see happening.

Purple Volcano

K-3

Tiny bubbles with a colorful twist!

Materials:

1 tall, skinny glass
4 ounces (118.28 ml) purple grape juice (must be real grape juice)
4 tsp (20 ml) baking soda
4 tsp (20 ml) white vinegar

Process:

1. Fill the glass half full with grape juice.
2. Stir in a small spoonful of baking soda.
3. Watch for amazing results.
4. Now add 1 teaspoon (5 ml) of white vinegar and look for the foam and color change again. Continue alternating vinegar and soda for bubbly, colorful fun.

Try This:

- The carbon dioxide bubbles are by-products of the combination of vinegar and baking soda. The grape juice helps us see those bubbles.
- Set up a science table where students can experiment with various combinations. With a little soap, vinegar, water, baking soda, food coloring and soda pop, you will set the stage for safe bubbly fun.

Guidelines to Facilitate Creative Learning

1. Respect a child's right to explore. Provide materials, resources and stimulating ideas that will lead children to their own questions and discoveries.

2. Introduce skills, techniques and information in response to a child's curiosity and needs.

3. Organize. Have clear aims and objectives in mind. Read instructions, have materials ready and go through a trial run. Children should be able to experiment and make discoveries with little assistance.

4. Be flexible. Students may not make the discoveries you expect.

5. Learn to recognize and praise children's skills of problem solving, questioning, observation, analysis and discovery.

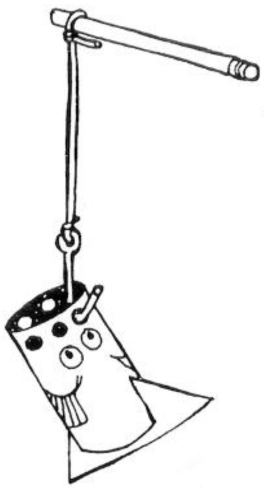
6. Promote children's confidence in their own abilities.

7. Evaluate the child's progress through observation of many experiences. Offer positive comments on the processes mastered and the concepts grasped.

8. Prepare for some degree of mess. Encourage students to participate in the planning and cleaning of a creative learning environment suitable to everyone involved.

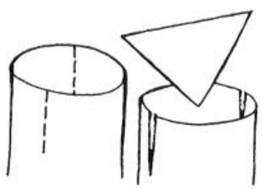
X

Fishing game

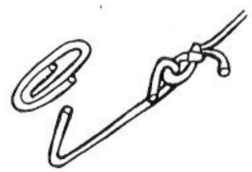


For the fishing rod, use a stick, ruler, unsharpened pencil or whatever else you can find.

1. Cut two slits opposite each other in one end of a roll. Cut a triangle of construction paper and slide it into these slits to make a tail.

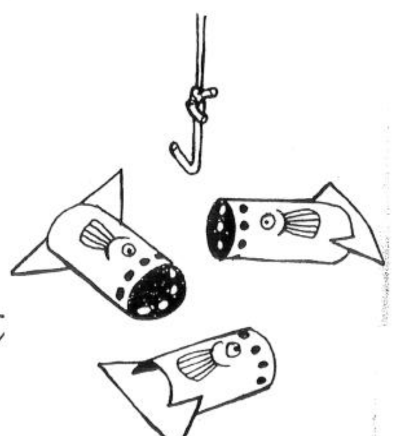


2. Punch holes around the other end of the roll. Draw on eyes, fins and other markings. Make more fish.



3. Open the paper clip and shape it as shown. Tie it onto one end of the yarn. Tie the other end of the yarn to the rod stick.

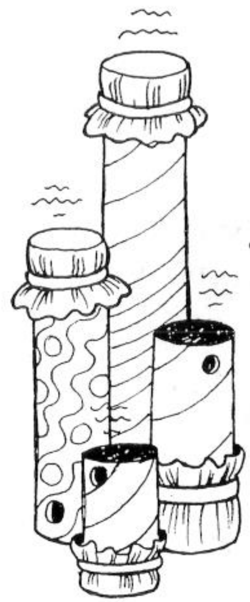
4. Go fishing! See if you can hook a fish through the holes in its mouth.



You will need

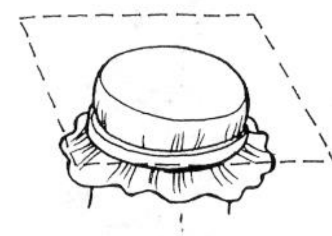
toilet-paper rolls
◎
scissors
◎
construction paper
◎
a hole punch
◎
crayons or markers
◎
a paper clip
◎
yarn or string
◎
a stick

Hummer

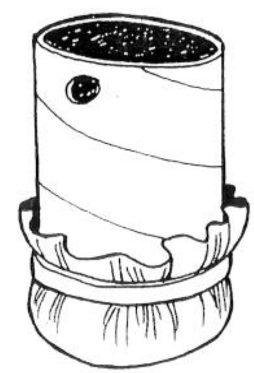


To make this hummer work, you need to hum a tune loudly into it.

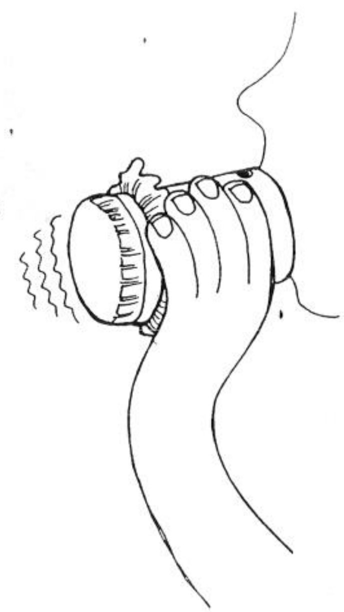
1. Smoothly cover one end of the roll with waxed paper. Hold the waxed paper in place with the rubber band.



2. Use the hole punch to make a hole in the roll at the opposite end.



3. Decorate your hummer and start humming!

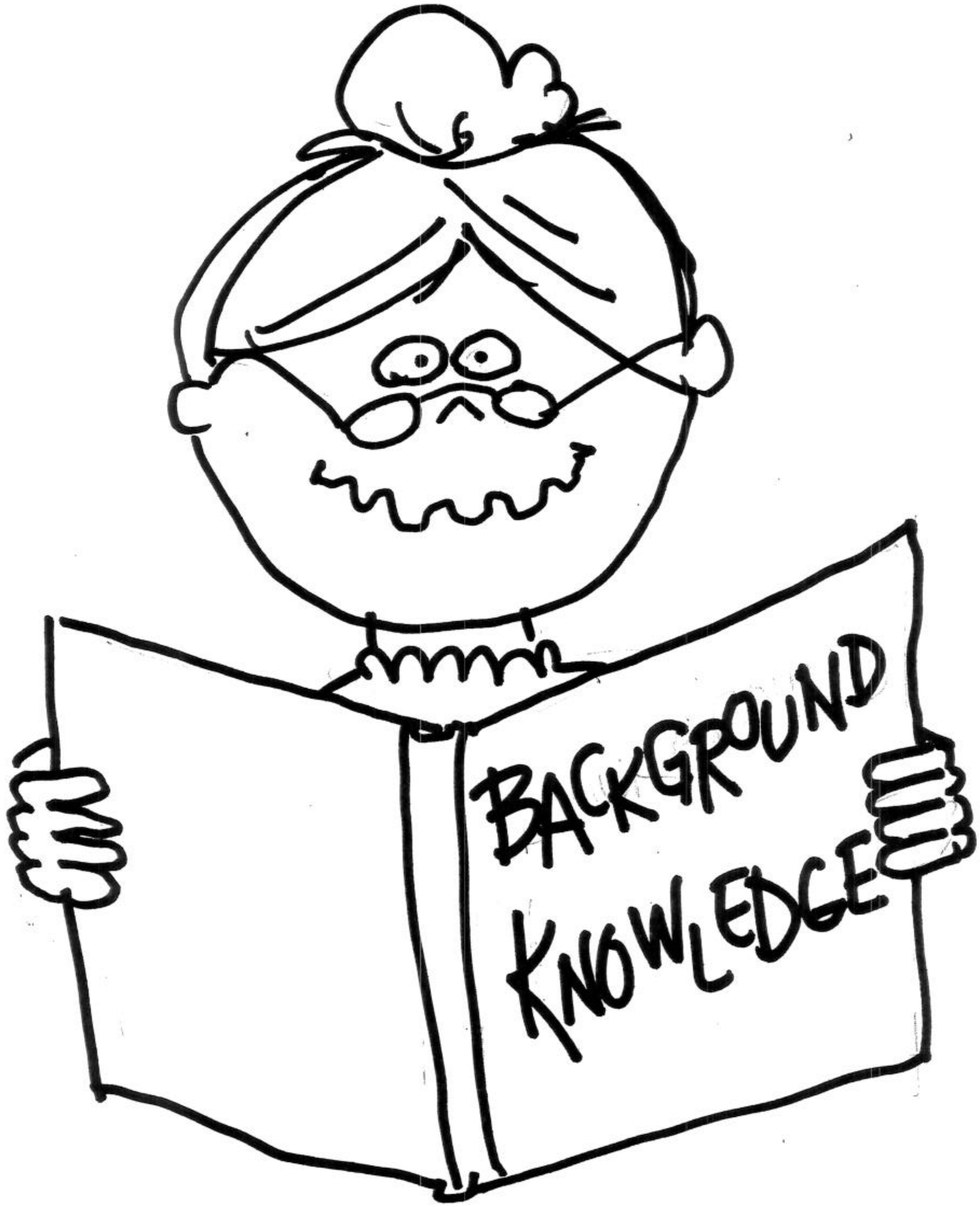


You will need

waxed paper
◎
a toilet-paper roll
◎
a rubber band
◎
a hole punch
◎
crayons, markers or stickers

— NOTES —

FOR TEACHER



Steps of the Scientific Method

1. Choose a problem.
State the problem as a question.

2. Research your problem.
Read, get advice, and make observations.

3. Develop a hypothesis.
Make a prediction about what will happen.

4. Design an experiment.
Plan how you will test your hypothesis.

5. Test your hypothesis.
Conduct the experiment and record the data.

6. Organize your data.
Create a chart or graph of your data.

7. Draw conclusions.
Analyze your data and summarize your findings.

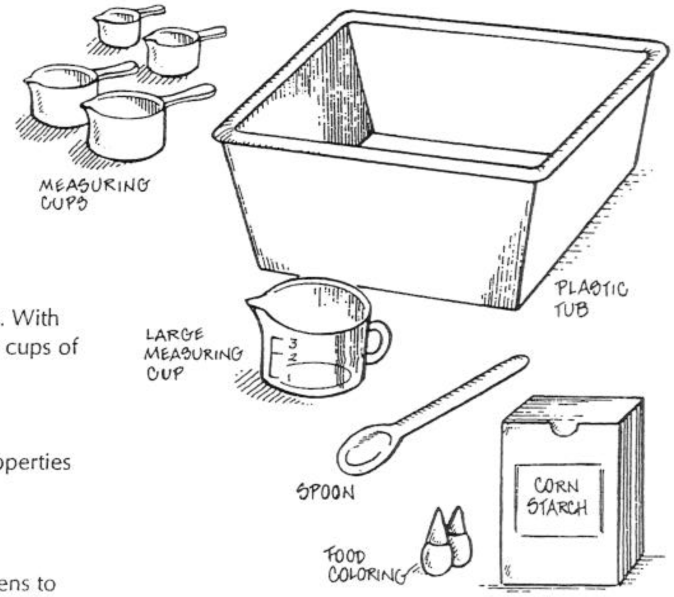
Great Goop

ALL ages

CLAY

Materials

one part cornstarch
one part water
plastic tub or large baking pan
large measuring cup
other measuring cups
spoon
food coloring, optional



Art Process

1. Mix the cornstarch with water in a large measuring cup. With one cup of cornstarch, use one cup of water. With four cups of cornstarch, use four cups of water and so on.
2. Add food coloring if desired. It is not necessary.
3. Pour the mixture into a tub or large baking pan.
4. Begin to experience and enjoy this mixture's unique properties and surprises.

Variations

- Add more cornstarch or more water and see what happens to the mixture.
- Make Great Goop in a water table or large tub for a group experience. Add utensils such as a spatula, rolling pin or whisk to manipulate the mixture.

BASICS

HINT

- *Do not pour the Great Goop down the sink when exploring is complete. Scoop it into a paper or plastic bag and discard in the trash.*
- *This is a very messy but wonderful project! Have a hand washing bucket nearby for easy cleanup.*

HHMI
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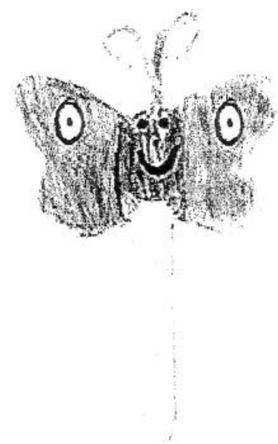
Where do butterflies come from?

Ever wonder where a butterfly comes from? It comes from a chrysalis (KRIS-uh-liss) which is also called a pupa. A chrysalis looks like a tiny leathery pouch. You can find one underneath some leaves in the summer.



Some animals don't change much as they grow up. Think about it: someone your age looks a lot like a grown-up. Grown-ups have more wrinkles and gray hair. But they still have two arms, two legs and one head—just like you.

We're going to meet an animal that's very different—the butterfly. Butterflies go through four life stages, and they look very different at each stage.

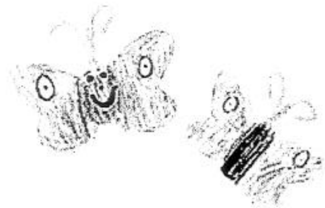
Here's what you need:

- Toilet-paper tube
- Tongue depressor or ice-cream pop stick
- Heavy paper
- 6" (150 mm) piece of pipe cleaner, folded in half
- Markers or crayons
- Scissors and glue

Here's what you do:

1. Cut out and color a butterfly from the heavy paper. Use any colors, but make both halves look the same. Put a small hole at the top of the butterfly's head.

2. Color the toilet paper tube to look like a chrysalis. (A monarch butterfly's chrysalis is green, but you can use any color.)



3. Take a piece of pipe cleaner and shape it like the letter "V". Put one point through the little hole in the butterfly's head and then twist it to look like antennae. Butterflies use these "feelers" to learn about their environment.

4. Glue the butterfly to one end of the tongue depressor or ice-cream pop stick. Let the glue dry.

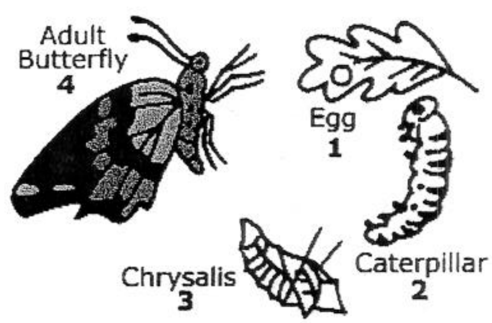
5. Curl the butterfly's wings and slide it into the chrysalis.

6. Pull the stick to make the beautiful butterfly come out of the chrysalis.

Fly your butterfly like a real one!

The butterfly's life cycle

Butterflies go four stages of life, but they only look like butterflies in the final stage. Birds, frogs, snakes and insects also change as they grow.



1. An adult butterfly lays an **egg**.

2. The egg hatches into a **caterpillar** or larva.

3. The caterpillar forms the **chrysalis** or pupa.

4. The chrysalis matures into a **butterfly.**

Courtesy of the Scotia-Glenville Children's Museum, Scotia, New York

Cool Home Plant-Parts Air Junk Critters Butterflies Inch Square

The Magic School Bus Dries Up

Subject: **Science, Water Cycle, Weather, Deserts**
Grade: **Pre-K-2**
Age: **4-8**
Audience: **Parents and Teachers**

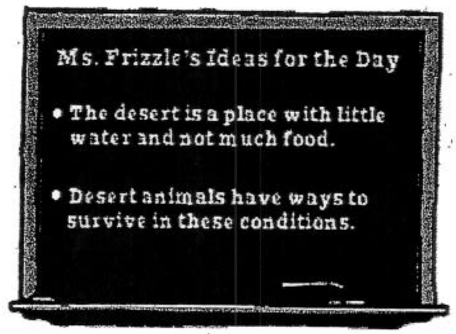
Field Trip Notes

Can anyone do something about the weather? It's a hot, muggy day and a thunderstorm might help break the heat. Ralphie fantasizes being a superhero - Weatherman - who controls the weather. He gets to live out his daydream when the class rides the Magic School Bus into the clouds. As Weatherman, Ralphie makes wind, an updraft, clouds, and rain. Then a thunderstorm moves in and the Magic School Bus is caught in the middle of it! Can Weatherman save then day?

Where's The Water?

Going Hands-On

For once, Arnold is prepared for a field trip! He's wearing desert survival gear. But the class discovers that desert animals have 'built-in' adaptations, or ways of surviving. One adaptation many desert animals have is the ability to get water from their food. Have children work in small groups to find out if foods they eat contain water.



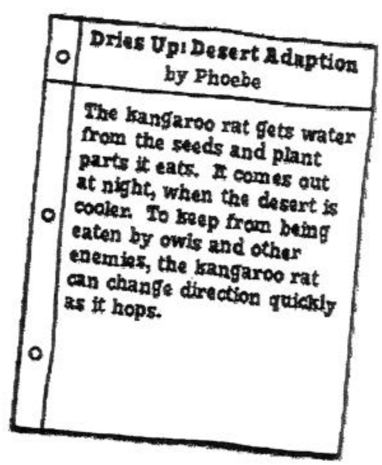
What You Need

for each group:

- 4 bite-size pieces of different foods (Try apple, turkey, cheese, bread, chips.)
- 4 plastic sandwich bags that zip close
- gooseneck lamp with 75-watt bulb
- copies of WHERE'S THE WATER? Page

Talk About It

Ask children if they think there is water in the food they eat. Why? Together, make a list of foods that kids think contain water.



What To Do

1. Give each group the materials.
2. Arrange a spot for kids to place bags about 20 inches under the lamp.
3. Help kids discover if the foods contain water. Have them write their responses on the WHERE'S THE WATER? page. (The moisture from the food evaporates and condenses in the sandwich bag.)

Next Stop

Ask children: What foods would you want to take with you if you were going on a hike in the desert?

From: **The Magic School Bus: Science Fun Activities**

Lessons designed to help you use Scholastic's The Magic School Bus as a supplement to your curriculum. The activities provided build on children's interest in The Magic School Bus and offer lots of opportunities to engage them in hands-on learning. Remember what Ms. Frizzle says, "Get out there and explore!"

(Print this page out)

Name ______________________________ Date ____________

LIZARD LIFE

Scholastic's The Magic School Bus™

How would a lizard meet its needs outside YOUR school? Make some observations that will help you find out.

What to Do

1. On the back of this paper, write your ideas about what a lizard needs.
2. On the back of this paper, write where a lizard might warm up and cool down outside your school.
3. Draw a picture in each of the boxes below. Show a lizard outside your school at three times of day.

How are your answers to questions 1 and 2 the same? different?

morning

middle of the day

night

Observations

Which seasons would be easy for a lizard to meet its needs outside your school? Which seasons would be hard?

SPRING	__Easy	__Hard
SUMMER	__Easy	__Hard
FALL	__Easy	__Hard
WINTER	__Easy	__Hard

Think About It

Why could or couldn't a lizard meet its needs outside your school? Write it down on the back of this sheet.

Back to "Cold Feet" Page

Experimental Science Projects: An Introductory Level Guide

This introductory level guide presents basic information for doing a science project. For a more detailed treatment see Experimental Science Projects: An Intermediate Level Guide.

To quickly jump to a section below click on:

| Observations | Information Gathering | Title | Purpose | Hypothesis | Procedure | Materials |
| Data | Recording Observations | Results | Calculations | Questions | Conclusions |

| What If My Science Project Doesn't Work? |

The following material assumes you are doing an experimental science project, and not a written report to present information on a science subject. As you read the various steps, you may want to follow along with an example science project.

• INITIAL OBSERVATION

You notice something, and wonder why it happens. You see something and wonder what causes it. You want to know how or why something works. You ask questions about what you have observed. The first step is to write down what you have noticed.

• INFORMATION GATHERING

Find out about what you want to investigate. Read books, magazines or ask professionals who might know in order to learn about the effect or area of study. Keep track of where you got your information.

• TITLE THE PROJECT

Choose a title that describes the effect or thing you are investigating. The title should summarize what the investigation will deal with.

• STATE THE PURPOSE OF THE PROJECT

What do you want to find out? Write a statement that describes what you want to do. Use your observations and questions to write the statement.

• MAKE HYPOTHESIS

Make a list of answers to the questions you have. This can be a list of statements describing how or why you think the observed things work. *Hypothesis must be stated in a way that can be tested by an experiment.*

• DESIGN AN EXPERIMENTAL PROCEDURE TO TEST YOUR HYPOTHESIS

Design an experiment to test each hypothesis. Make a step-by-step list of what you will do to answer your questions. This list is called an experimental procedure.

Guidelines for Experimental Procedures

- Select only one thing to change in each experiment. Things that can be changed are called variables.
- Change something that will help you test your hypothesis.
- The procedure must tell how you will change this one thing.
- The procedure must explain how you will measure the amount of change.
- Each type of experiment needs a "control" for comparison so that you can see what the change actually did.

• OBTAIN MATERIALS AND EQUIPMENT

Make a list of the things you need to do the experiments, and prepare them. If you need special equipment, a local college or business may be able to loan it to you. Another source of science materials are mail order supply houses such as Edmund Scientific in Barrington, New Jersey (phone 1-609-457-8880 for a catalog). Professional science supply houses are located in larger cities. They will have just about anything you will need.

• DO THE EXPERIMENT AND RECORD DATA

Do the experiment and record all numerical measurements made. Data can be amounts of chemicals used, how long something is, the time something took, etc. If you are not making any measurements, you probably are not doing an experimental science project.

• RECORD YOUR OBSERVATIONS

Observations can be written descriptions of what you noticed during an experiment, or problems encountered. Keep careful notes of everything you do, and everything that happens. Observations are valuable when drawing conclusions, and useful for locating experimental errors .

• CALCULATIONS

Perform any math needed to turn raw data recorded during experiments into numbers you will need to make tables, graphs or draw conclusions.

• SUMMARIZE RESULTS

Summarize what happened. This could be in the form of a table of numerical data or graphs. It could also be a written statement of what occurred during the experiments.

• DRAW CONCLUSIONS

Using the trends in your experimental data and your experimental observations, try to answer your original questions. Is your hypothesis correct? Now is the time to pull together what happened, and assess the experiments you did.

Other Things You Can Mention in the Conclusion

- If your hypothesis is not correct, what could be the answer to your question?
- Summarize any difficulties or problems you had doing the experiment.
- Do you need to change the procedure and repeat your experiment?
- What would you do different next time?
- List other things you learned.

• TRY TO ANSWER RELATED QUESTIONS

What you have learned may allow you to answer other questions. Many questions are related. Several new questions may have occurred to you while doing experiments. You may now be able to understand or verify things that you discovered when gathering information for the project. Questions lead to more questions, which lead to additional hypothesis that can be tested.

• WHAT IF MY SCIENCE PROJECT DOESN'T WORK?

No matter what happens, you will learn something. Science is not only about getting "the answer." Knowing that something didn't work, is actually knowing quite a lot. Experiments that don't turn out as planned are an important step in finding an answer.

➡ Experimental Science Project: An Intermediate Level Guide

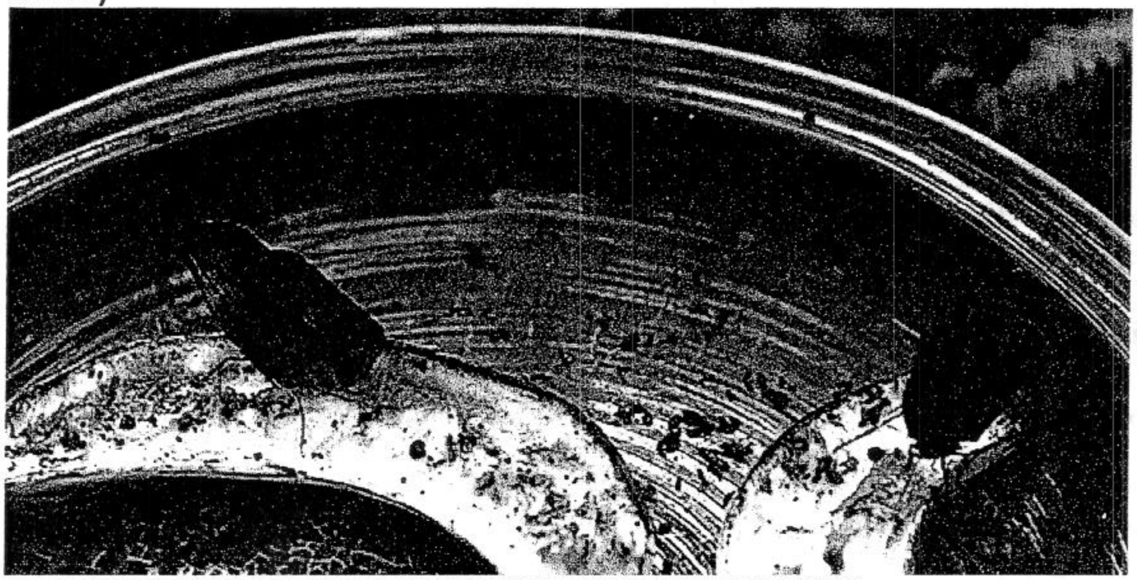
➡ Example Science Project

David Morano, Assoc. Professor
Mankato State University

The Scientific Method

The following steps make up the **Scientific Method**. These steps make up a method which may be used to logically solve problems in many other areas of life. Françesco Redi and Louis Pasteur used the scientific method to disprove the idea of spontaneous generation.

First, though, do you see any animals in this picture? (if so, click on them)



Somebody up above must have dropped this banana.

If you were really in that place and trying to figure out what you were seeing, you could use the scientific method to study the "problem."

(There is a link to an explanation of the photograph near the bottom of this page.)

Observation:

A good scientist is observant and notices thing in the world around him/herself. (S)he sees, hears, or in some other way notices what's going on in the world and becomes curious about what's happening. This can and does include reading and studying what others have done in the past because scientific knowledge is cumulative. In physics, when Newton came up with his Theory of Motion, he based his hypothesis on the work of Copernicus, Kepler, and Galileo as well as his own, newer observations. Darwin not only observed and took notes during his voyage, but he also studied the

For centuries, people based their beliefs on their interpretations of what they saw going on in the world around them without testing their ideas to determine the validity of these theories — in other words, they didn't use the scientific method to arrive at answers to their questions. Rather, their conclusions were based on untested observations.

Among these ideas, since at least the time of Aristotle (4th Century BC), people (including scientists) believed that simple living organisms could come into being by **spontaneous generation**. This was the idea that non-living *objects* can give rise to living *organisms*. It was common "knowledge" that simple organisms like worms, beetles, frogs, amd salamanders could come from dust, mud, etc., and food left out, quickly "swarmed" with life. For example:

Observation: Every year in the spring, the Nile River flooded areas of Egypt along the river, leaving behind nutrient-rich mud that enabled the people to grow that year's crop of food. However, along with the muddy soil, large numbers of frogs appeared that weren't around practice of artificial selection and read the works of other naturalists to form his Theory of Evolution.

in drier times.

"Conclusion": It was perfectly obvious to people back then that muddy soil gave rise to the frogs.

Observation: In many parts of Europe, medieval farmers stored grain in barns with thatched roofs (like Shakespeare's house). As a roof aged, it was not uncommon for it to start leaking. This could lead to spoiled or moldy grain, and of course there were lots of mice around.

"Conclusion": It was obvious to them that the mice came from the moldy grain.

Observation: In the cities, there were no sewers nor garbage trucks. Sewage flowed in the gutters along the streets, and the sidewalks were raised above the streets to give people a place to walk. In the intersections, raised stepping stones were strategically placed to allow pedestrians to cross the intersection, yet were spaced such that carriage wheels could pass between them. In the morning, the contents of the chamber pots were tossed out the nearest window. When people were done eating a meal, the bones were tossed out the window, too. A chivalrous gentleman always walked closest to the street when escorting a woman, so if a horse and carriage came by and splashed up this filth, it would land on him, and not the lady's expensive silk gown. Most of these cities also had major rat problems which contributed to the spread of Bubonic Plague (Black Death) — hence the story of the Pied Piper of Hamelin, Germany.

"Conclusion": Obviously, all the sewage and garbage turned into the rats.

Observation: Since there were no refrigerators, the mandatory, daily trip to the butcher shop, especially in summer, meant battling the flies around the carcasses. Typically, carcasses were "hung by their heels," and customers selected which chunk the butcher would carve off for them.

"Conclusion": Obviously, the rotting meat that had been hanging in the sun all day was the source of the flies.

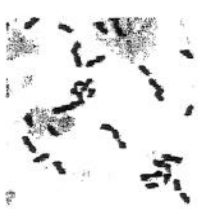
From this came a number of interesting recipes, such as:

Recipe for bees:

Kill a young bull, and bury it in an upright position so that its horns protrude from the ground. After a month, a swarm of bees will fly out of the corpse.

Jan Baptista van Helmont's recipe for mice:

Place a dirty shirt or some rags in an open pot or barrel containing a few grains of wheat or some wheat bran, and in 21 days, mice will appear. There will be adult males and females present, and they will be capable of mating and reproducing more mice.



With the development and refinement of the microscope in the 1600s, people began seeing all sorts of new life forms such as yeast and other fungi, bacteria, and various protists. No one knew from where these organisms came, but people figured out they were associated with things like spoiled broth. This seemed to add new evidence to the idea of spontaneous generation — it seemed perfectly logical that these minute organisms should arise spontaneously. When Jean Baptiste Lamarck proposed his theory of evolution, to reconcile his ideas with Aristotle's *Scala naturae*, he proposed that as creatures strive for greater perfection, thus move up the "ladder," new organisms arise by spontaneous generation to fill the vacated places on the lower rungs.

Observations: It was known that soup that was exposed to the air spoiled — bacteria grew in it. Some people claimed that there was a "life force" present in the molecules of all inorganic matter, including air and the oxygen in it, that could cause spontaneous generation to occur, thus accounting for the presence of bacteria in spoiled soups. Even when briefly-boiled soup was poured into "clean" flasks with cork lids, microorganisms still grew there. Containers of soup that had been boiled for one hour, and then were sealed, remained sterile. Boiling for only a few minutes was not enough to sterilize the soup.

Question:

The scientist then raises a question about what (s)he sees going on. The question raised must have a "simple," concrete answer that can be obtained by performing an experiment. For example, "How many students came to school today?" could be answered by counting the students present on campus, but "Why did you come to school today?" couldn't really be answered by doing an experiment.

- **Question:** Where do the flies at the butcher shop really come from? Does rotting meat turn into or produce the flies?
- **Question:** Is there indeed a "life force" present in air (or oxygen) that can cause bacteria to develop by spontaneous generation? Is there a means of allowing air to enter a container, thus any life force, if such does exist, but not the bacteria that are present in that air?

Hypothesis:

This is a tentative answer to the question: a testable explanation for what was observed. The scientist tries to explain what caused what was observed.

- **Hypothesis:** Rotten meat does not turn into flies. Only flies can make more flies.
- **Hypothesis:** There is no such life force in air, and a container of sterilized broth will remain sterile, even if exposed to the air, as long as bacteria cannot enter the flask.

- In a cause and effect relationship, what you *observe* is the effect, and hypotheses are possible causes. A generalization based on inductive reasoning is not a hypothesis. An hypothesis is not an observation, rather, a tentative *explanation* for the observation. For example, I might observe the effect that my throat is sore. Then I might form hypotheses as to the cause of that sore throat, including a bacterial infection, a viral infection, or screaming too much at a ball game.
- Hypotheses reflect past experience with similar questions ("educated propositions" about cause) and the work of others. Hypotheses are based on previous knowledge, facts, and general principles. Your answer to the question of what caused the observed effect will be based on your previous knowledge of what causes similar effects in similar situations. For example, I know that colds are contagious, I don't know anyone with a cold, I was at the ball game yesterday, and I was doing a lot of yelling while I was there, so I think that caused my sore throat.
- Multiple hypotheses should be proposed whenever possible. One should think of alternative causes that could explain the observation (the correct one may not even be one that was thought of!) For example, maybe somebody sitting near me at the ball game had a sore throat and passed it on to me.
- Hypotheses should be testable by experimentation and deductive reasoning. For example, throat culture and other tests yielded no signs of a bacterial or viral infection, I have no fever or other signs/symptoms, and the doctor says my vocal cords are "swollen" in a way that would indicate overuse.

The Magic School Bus

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Cold Feet

Field Trip Notes

Liz is missing! The kids are worried, but Ms. Frizzle is calm. She knows Liz is at a spa for cold-blooded animals. To help the kids discover what it means to be cold-blooded, the Friz turns the class into reptiles, and they sneak inside Herp Haven. There, the kids are convinced that Ms. Herpst plans to harm Liz. They've got to save her! While trying to rescue Liz, the kids learn she has a different way of regulating her body temperature than warm-blooded animals - mammals and birds - do. One thing the kids don't understand: Why doesn't Liz want to leave Herp Haven?

Activity Printable

Ms. Frizzle's Ideas for the Day

- Cold-blooded animals - including reptiles and amphibians - depend on the outside environment to warm and cool themselves.
- When cold-blooded animals are warm enough they are active. When they are cold they stop moving, breathe slowly, and don't eat.

Lizard Life

Going Hands-On

Time: 30 minutes
Group Size: Entire class

Ms. Frizzle's class

discovers that cold-blooded animals like lizards, turtles, and alligators need to live in environments where they can warm and cool themselves to maintain their proper body temperature. Your kids can think about how a lizard might respond to your environment.

> ... themselves, to keep their bodies at the right temperature. To get warm, they lie on rocks or earth warmed by the sun. When lizards get too hot, they move to the shade or climb up trees where it's cooler. Some go underground or underwater when it's very hot or very cold.

What You Need

- Copies of LIZARD LIFE
- Pencils
- Crayons
- Drawing paper

Talk About It

Ask: What do lizards need in their environment to keep their bodies at the right temperature? (places to warm up and cool down; shelter in extreme cold or extreme heat)

What To Do

1. Distribute materials and help kids follow activity-page directions. Have them observe the environment outside the school. Ask: Where might a lizard warm and cool itself in this environment?

2. Ask: How does the temperature outside change during the day? (Mornings and evenings are usually cool, middays are warm.) What would this mean for a lizard? Have children draw the places outside the school where a lizard might regulate its temperature at three different times of the day.

3. Have students think about how the temperature changes during the year. Ask: Why could or couldn't a lizard meet its needs in this environment all year round?

Next Stop

Ask: What reptiles live in our area? Help students contact local parks or wildlife departments to find out. Ask: What other animals are cold-blooded? (amphibians, fish, insects) How could we find out more about them?